

What is claimed is:

1. A super twisted nematic (STN) liquid crystal display (LCD) driver comprising:

5 a sub frame counter, which counts the number of sub frames in response to a clock signal and generates a sub frame flag signal every time each sub frame is counted;

an N clock counter, which receives an N-line signal and generates an N-line flag signal every time the number of N-line counted is N in response to the clock signal;

10 a frame counter, which receives a frame rate control (FRC) selection signal, counts the number of the sub frame flag signal, and generates a frame flag signal every time the number of the sub frame flag signal counted is n; and

15 a liquid crystal polarity inversion signal generator, which receives one of the sub frame flag signal, the N-line flag signal, and the frame flag signal in response to the FRC selection signal, and generates a liquid crystal polarity inversion signal that inverts a polarity of an STN LCD.

2. The STN LCD driver of claim 1, wherein the STN LCD driver further comprises:

20 a column driver, which receives data and generates a segment voltage that drives a column electrode of the STN LCD in response to a level of the liquid crystal polarity inversion signal; and

25 a row driver, which receives a row selection signal and generates a com voltage that drives a row electrode of the STN LCD in response to the level of the liquid crystal polarity inversion signal.

3. The STN LCD driver of claim 1, wherein the FRC selection signal has information on whether a driving method of the STN LCD is an nFRC method, where n is a natural number.

30 4. The STN LCD driver of claim 1, wherein the N-line signal has information used to divide a frame into N sub frames, where N is a natural number.

5. A driving method of a super twisted nematic (STN) liquid crystal display (LCD) driver, the driving method comprising:

(a) counting the number of sub frames in response to a clock signal and generating a sub frame flag signal every time each frame is counted;

(b) receiving an N-line signal and generating an N-line flag signal in response to input of the clock signal every time the number of N-line counted is N in response to the clock signal;

(c) receiving a frame rate control (FRC) selection signal, counting the number of sub frame flag signals, and generating a frame flag signal every time the number of sub frame flag signals counted is n; and

(d) selecting one of the sub frame flag signal, the N-line flag signal, and the frame flag signal in response to the FRC selection signal, and generating a liquid crystal polarity inversion signal that inverts a polarity of the STN LCD.

6. The driving method of claim 5, wherein the driving method of the STN LCD driver further comprises:

(e) receiving data and generating a segment voltage that drives a column electrode of the STN LCD in response to the level of the liquid crystal polarity inversion signal; and

(f) receiving a row selection signal and, in response to the level of the liquid crystal polarity inversion signal, generating a com voltage that drives a row electrode of STN LCD.

7. The driving method of claim 5, wherein the FRC selection signal has information on whether a driving method of the STN LCD is an nFRC method, and the n is a natural number.

8. The driving method of claim 5, wherein the N-line signal has information used to divide a frame into N sub frames, and the N is a natural number.

9. A driving method of a super twisted nematic (STN) liquid crystal display (LCD) driver, the driving method comprising:

(a) determining whether a frame rate control (FRC) selection signal is in accordance with an nFRC method;

5 (b) counting the number of sub frames; and

(c) generating a liquid crystal polarity inversion signal that inverts a polarity of the STN LCD if the number of sub frames is n.

10 10. The driving method of claim 9, wherein the driving method of the STN LCD driver further comprises:

(d) receiving data and, in response to the level of the liquid crystal polarity inversion signal, generating a segment voltage that drives a column electrode of the STN LCD; and

15 (f) receiving a row selection signal and, in response to the level of the liquid crystal polarity inversion signal, generating a com voltage that drives a row electrode of the STN LCD.

11. The driving method of claim 9, wherein n sub frames constitute one frame.

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12. A driving method of a super twisted nematic (STN) liquid crystal display (LCD) driver using an nFRC method, wherein a polarity of the STN LCD is inverted in each frame.

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13. The driving method of claim 9, wherein one frame is comprised of n sub frames.